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(54) **A method for making positive printing plates from a heat mode sensitive imaging element**

(57) According to the present invention there is provided a method for making lithographic printing plates including the following steps

- a) preparing a heat mode imaging element having on a lithographic base with a hydrophilic surface a first layer including a polymer, soluble in an aqueous alkaline solution and a top layer on the same side of the lithographic base as the first layer which top layer is sensitive to IR-radiation and is unpenetrable for an alkaline developer containing SiO₂ as silicates;
- b) exposing imagewise said heat mode imaging element to IR-radiation;
- c) developing said imagewise exposed heat mode imaging element with said alkaline developer so that the exposed areas of the top layer and the underlying areas of the first layer are dissolved and the unexposed areas of the first layer remain undissolved characterized in that said top layer includes an IR-dye in an amount between 1 and 100% by weight of the total amount of said IR-sensitive top layer selected from the group consisting of indoaniline dyes, cyanine dyes, merocyanine dyes, oxonol dyes, porphine derivatives, anthraquinone dyes, merostyryl dyes, pyrylium compounds, diphenyl and triphenyl azo compounds and squarylium derivatives.



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EUROPEAN SEARCH REPORT

Application Number

EP 98 20 3122

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.8)
X	GB 1 245 924 A (AGFA-GEVAERT N.V.) 15 September 1971 (1971-09-15)	1-11	B41C1/10 B41M5/36
Y	* page 5, line 61 - page 5, line 62 * * page 1, line 63 * * page 2, line 2 - line 10 * * page 2, line 72 - line 78 * * page 6, line 35 - line 53; example 8 * * page 5, line 33 - page 6, line 75 *	1-11	
Y	US 5 466 557 A (HALEY NEIL F ET AL) 14 November 1995 (1995-11-14)	1-11	
Y	* column 8, line 50 - line 51 * * column 10, line 48 - line 56; claim 1 *	1-11	
Y	US 5 491 046 A (HALEY NEIL F ET AL) 13 February 1996 (1996-02-13)	1,6	
	* column 9, line 1 - line 3 * * column 9, line 28 *		
D,Y	DE 43 31 162 A (BAYER AG) 16 March 1995 (1995-03-16)	1	
	* the formulae * * page 13, line 36 - line 39 *		
Y	EP 0 706 899 A (AGFA GEVAERT NV) 17 April 1996 (1996-04-17)	1	
	* page 11 *		
Y	EP 0 366 461 A (JUJO PAPER CO LTD) 2 May 1990 (1990-05-02)	1	
	* the formulae *		
Y	WO 95 07822 A (AGFA GEVAERT NV ;UYTTERHOEVEN HERMAN (BE); BASTIAENS LUC (BE); ACK) 23 March 1995 (1995-03-23)	1	
	* the formulae *		

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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 4 November 1999	Examiner Rasschaert, A
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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EUROPEAN SEARCH REPORT

Application Number
EP 98 20 3122

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Y	EP 0 573 092 A (AGFA GEVAERT NV) 8 December 1993 (1993-12-08) * page 3, line 22 - line 36; claims 1,10 * ---	1	
Y	EP 0 347 245 A (FUJI PHOTO FILM CO LTD) 20 December 1989 (1989-12-20) * the whole document * ---	1-11	
Y	GB 1 160 221 A (GEVAERT-AGFA N.V.) 6 August 1969 (1969-08-06) * page 6, line 55 - line 60 * ---	1	
Y	GB 1 076 799 A (AGFA A.G.) * claim 6 * ---	1	
A	GB 1 155 035 A (GEVAERT-AGFA N.V.) 11 June 1969 (1969-06-11) * claim 10 * * page 4, line 41 - line 47 * * page 3, line 27 * * page 2, line 18 - page 3, line 13 * ---	1	
A	GB 1 154 568 A (AGFA-GEVAERT N.V.) 11 June 1969 (1969-06-11) * the whole document * ---	1	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
A	EP 0 732 628 A (MINNESOTA MINING & MFG) 18 September 1996 (1996-09-18) * the whole document * -----	1	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 4 November 1999	Examiner Rasschaert, A
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03/02 (P4/C21)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 98 20 3122

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

04-11-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 1245924 A	15-09-1971	BE 721468 A	27-03-1969
		DE 1797415 A	19-08-1971
		FR 1588977 A	16-03-1970
		US 3628953 A	21-12-1971
US 5466557 A	14-11-1995	NONE	
US 5491046 A	13-02-1996	NONE	
DE 4331162 A	16-03-1995	DE 69412495 D	17-09-1998
		DE 69412495 T	25-03-1999
		DE 69415544 D	04-02-1999
		DE 69415544 T	26-08-1999
		WO 9507950 A	23-03-1995
		WO 9507822 A	23-03-1995
		EP 0719217 A	03-07-1996
		EP 0719304 A	03-07-1996
		JP 9502477 T	11-03-1997
		JP 9504239 T	28-04-1997
		US 5948600 A	07-09-1999
EP 0706899 A	17-04-1996	US 5506085 A	09-04-1996
EP 0366461 A	02-05-1990	JP 2120082 A	08-05-1990
		JP 2530697 B	04-09-1996
		DE 68927780 D	27-03-1997
		DE 68927780 T	28-08-1997
		US 5075146 A	24-12-1991
WO 9507822 A	23-03-1995	DE 4331162 A	16-03-1995
		DE 69412495 D	17-09-1998
		DE 69412495 T	25-03-1999
		DE 69415544 D	04-02-1999
		DE 69415544 T	26-08-1999
		WO 9507950 A	23-03-1995
		EP 0719217 A	03-07-1996
		EP 0719304 A	03-07-1996
		JP 9502477 T	11-03-1997
		JP 9504239 T	28-04-1997
		US 5948600 A	07-09-1999
EP 0573092 A	08-12-1993	JP 6055869 A	01-03-1994
EP 0347245 A	20-12-1989	JP 2003065 A	08-01-1990
		JP 2639693 B	13-08-1997
		DE 68922144 D	18-05-1995

EPO FORM P469

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 98 20 3122

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

04-11-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0347245 A		DE 68922144 T	10-08-1995
GB 1160221 A	06-08-1969	AT 279350 B	10-03-1970
		BE 681138 A	17-11-1966
		CH 480189 A	31-10-1969
		DE 1571816 A	14-01-1971
		FR 1532243 A	18-11-1968
		NL 6606719 A	25-10-1966
		SE 338712 B	13-09-1971
		US 3793025 A	19-02-1974
		US 4004924 A	25-01-1977
GB 1076799 A		BE 657502 A	23-06-1965
		DE 1447572 A	05-12-1968
		FR 1417929 A	09-02-1966
GB 1155035 A	11-06-1969	NL 6608712 A	25-11-1966
GB 1154568 A	11-06-1969	US 3811773 A	21-05-1974
		BE 683054 A	27-11-1966
		CH 477295 A	31-08-1969
		NL 6608711 A	25-11-1974
EP 0732628 A	18-09-1996	JP 8262742 A	11-10-1996
		US 5670294 A	23-09-1997

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82